CAPSTONE PROJECT

AGENTIC AI HEALTH SYMPTOM CHECKER

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OUTLINE

- **Problem Statement** (Should not include solution)
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

An Agentic AI Health Symptom Checker helps users understand their health conditions by analyzing symptoms and providing probable causes, preventive advice, and care recommendations. It retrieves verified medical data, symptom databases, and guidelines from trusted sources like WHO, government health portals, and medical journals. Users can input symptoms in natural language such as “I have a sore throat and fever,” and the agent provides possible conditions, urgency level, home remedies, and when to consult a doctor. It supports multi-language interaction and avoids self-diagnosis risks by offering educational and referral-based suggestions. This AI-driven assistant promotes early detection, reduces misinformation, and empowers users to take informed health actions.

PROPOSED SOLUTION

The proposed solution is a no-code Agentic AI Health Symptom Checker built using IBM Watsonx.ai Granite LLM, designed to interactively assist users in understanding their health conditions through a structured and intelligent conversation flow. The system allows users to input their symptoms in natural language, such as “I have a sore throat and fever.” In response, the AI agent interprets these inputs and provides:

- Probable medical conditions based on the symptoms.
- Urgency level to help users assess the severity.
- Home remedies and preventive care tips aligned with verified guidelines.
- Suggestions on when to consult a doctor or seek emergency help.

The agent functions by accessing verified medical sources, including WHO guidelines, government health portals, and reliable symptom databases, ensuring that the advice provided is educational, evidence-based, and safe. It avoids direct self-diagnosis and instead offers referral-based recommendations to promote informed health actions.

Furthermore, the solution supports multi-language interactions, making it accessible to users from diverse backgrounds. It fosters early detection, combats health misinformation, and empowers users with trustworthy health insights—all without needing any programming or manual integration.

SYSTEM APPROACH

- **System Requirements:**

⇒ IBM Cloud Lite Account

⇒ Watsonx.ai platform access

⇒ Foundation Model: Granite-13B-chat-v2

⇒ Watsonx Prompt Lab

⇒ No local development setup required.

- **Methodology:**

⇒ Utilized a no-code approach with Watsonx Prompt Lab for LLM prompt design and interaction.

⇒ Prompts were designed to simulate agentic conversation, asking users one question at a time.

⇒ Followed a step-by-step health intake pattern to ensure safe and effective responses.

⇒ Used verified health information (WHO, CDC, etc.) as a base for language generation within prompts.

- **Libraries/Services Used:**

⇒ No external Python libraries used (completely no-code).

⇒ IBM Watsonx Foundation Model Inference

⇒ Watsonx Prompt Lab interface

ALGORITHM & DEPLOYMENT

- **Prompt-Driven Logic (Algorithm):**

⇒ The system follows a prompt-based agentic workflow using IBM Granite LLM (13B-chat-v2).

⇒ Each interaction follows a question-by-question format:

1 Ask user about current symptoms.

2 Ask about onset and symptom progression.

3 Inquire about fever, severity, and related conditions.

4 Provide a summarized health insight with possible causes, urgency level, and when to seek medical help.

5 No traditional ML algorithm is coded — all logic is handled through smart prompt engineering within Watsonx Prompt Lab.

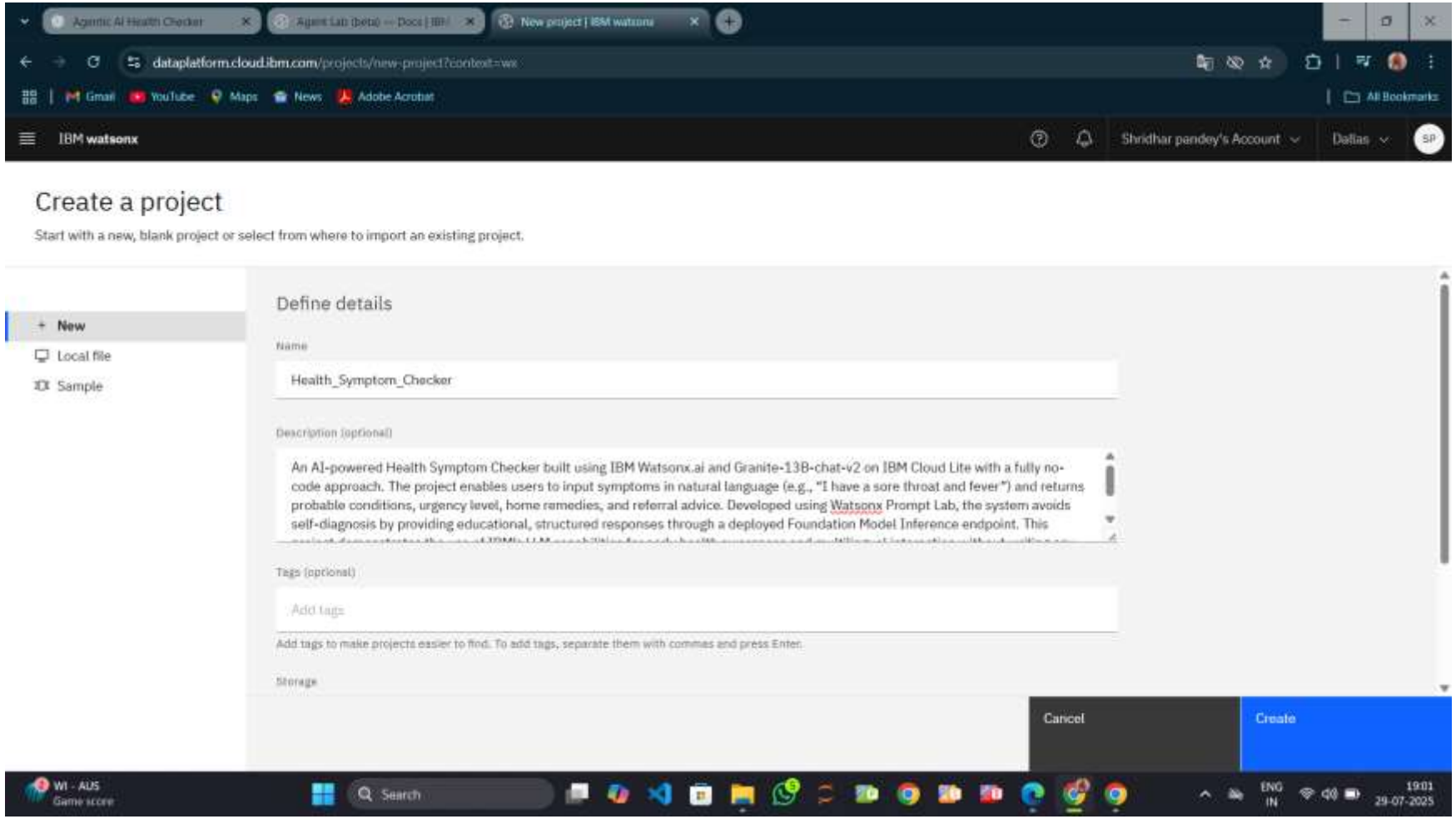
- **Deployment Strategy:**

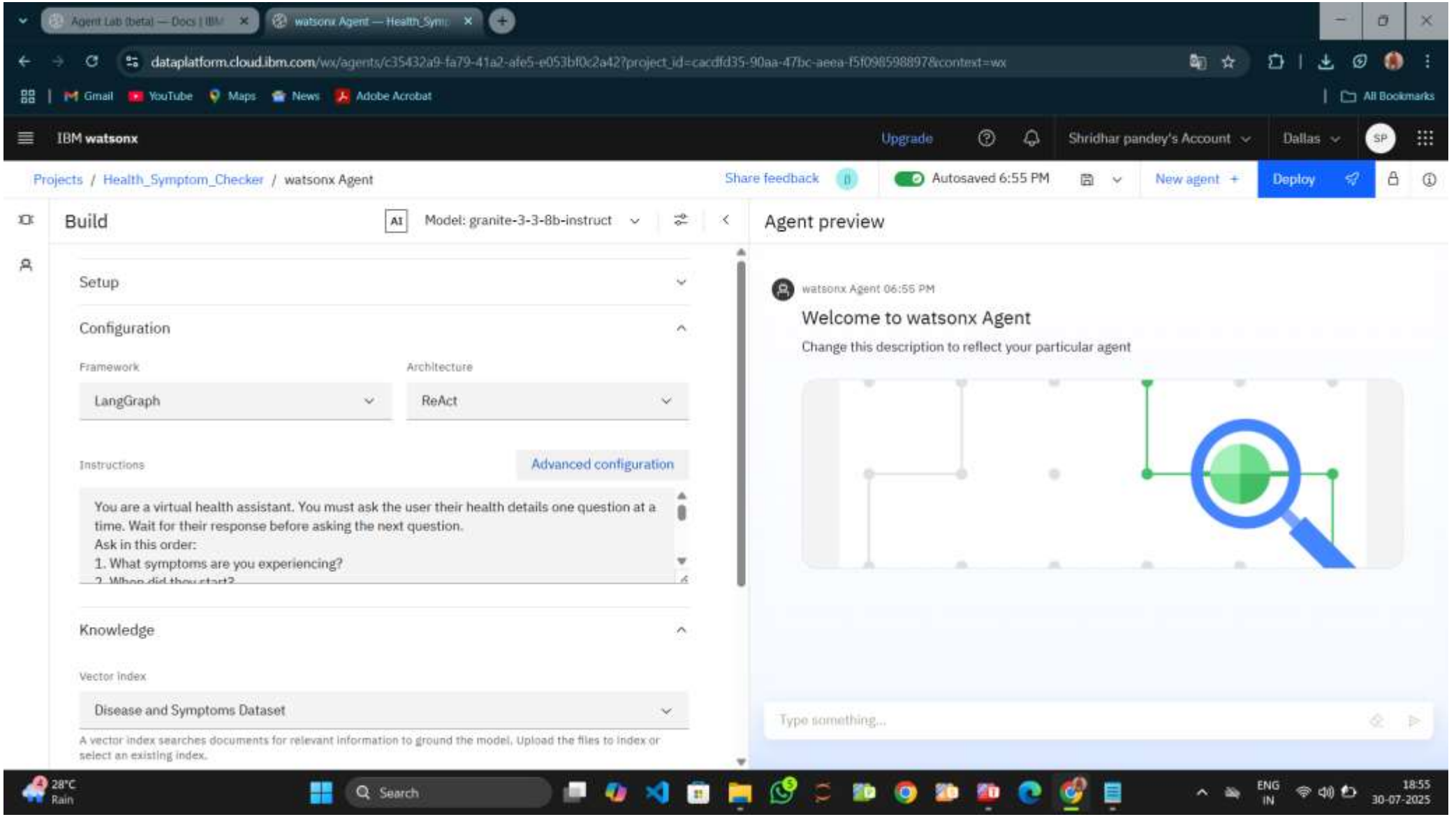
⇒ Used Watsonx.ai Prompt Lab to design, test, and deploy prompts.

⇒ Deployed the interaction flow using Foundation Model Inference via Granite model on IBM Cloud Lite.

⇒ The deployed agent is hosted entirely on the IBM cloud — accessible without writing or hosting any backend or frontend code.

RESULT





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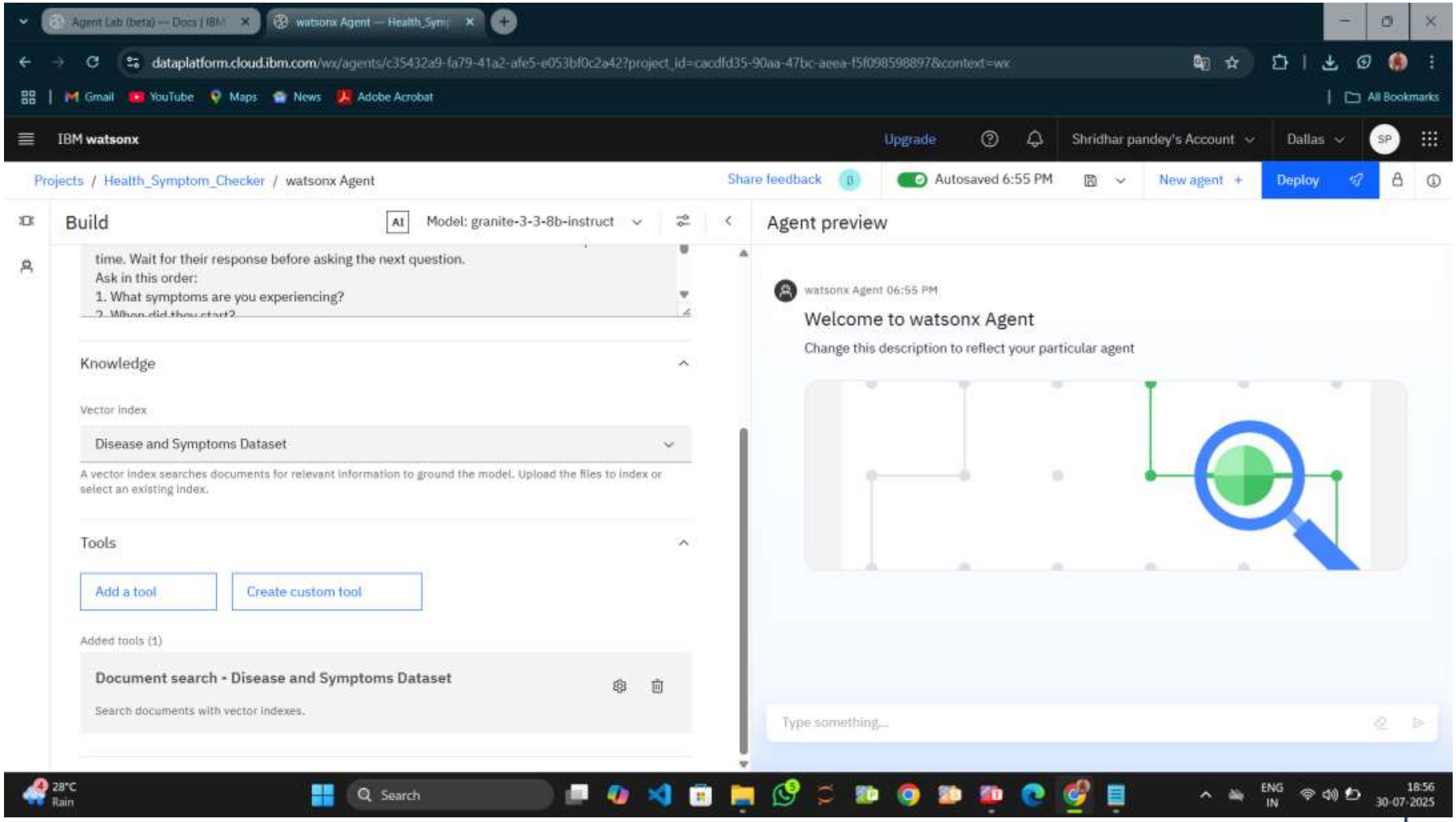

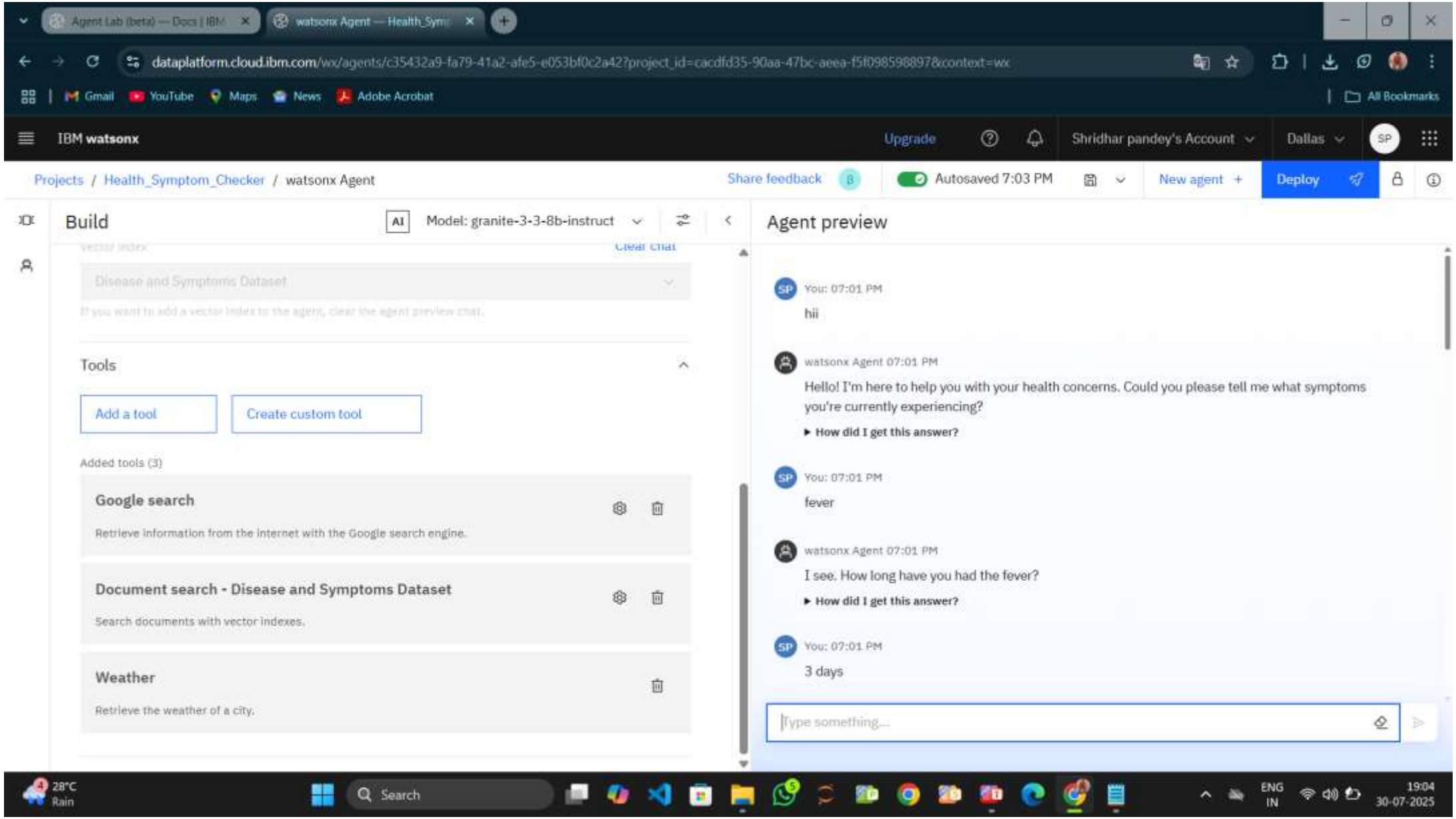
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IBM watsonx
Upgrade
Shridhar pandey's Account
Dallas
Projects / Health_Symptom_Checker / watsonx Agent
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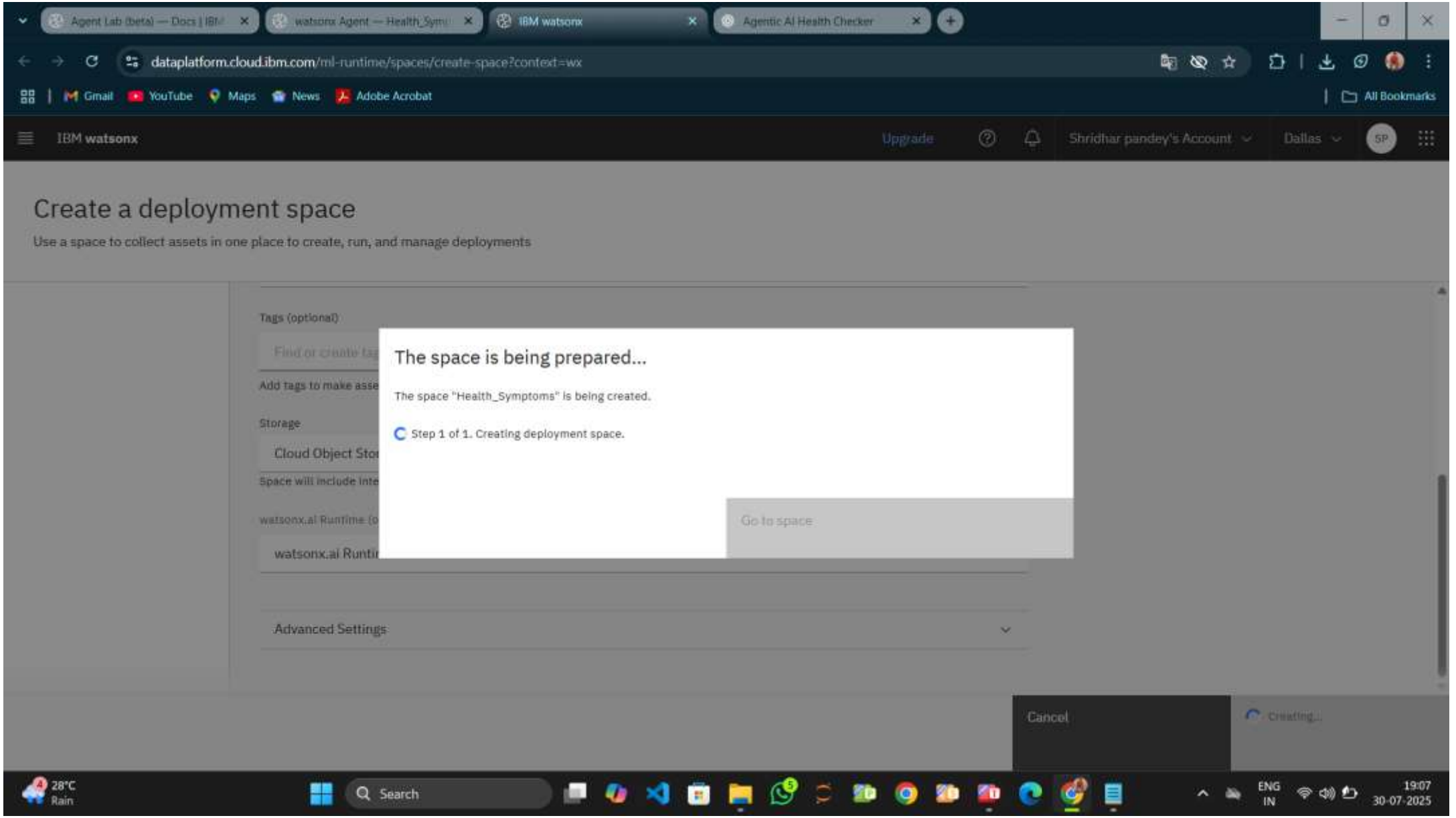
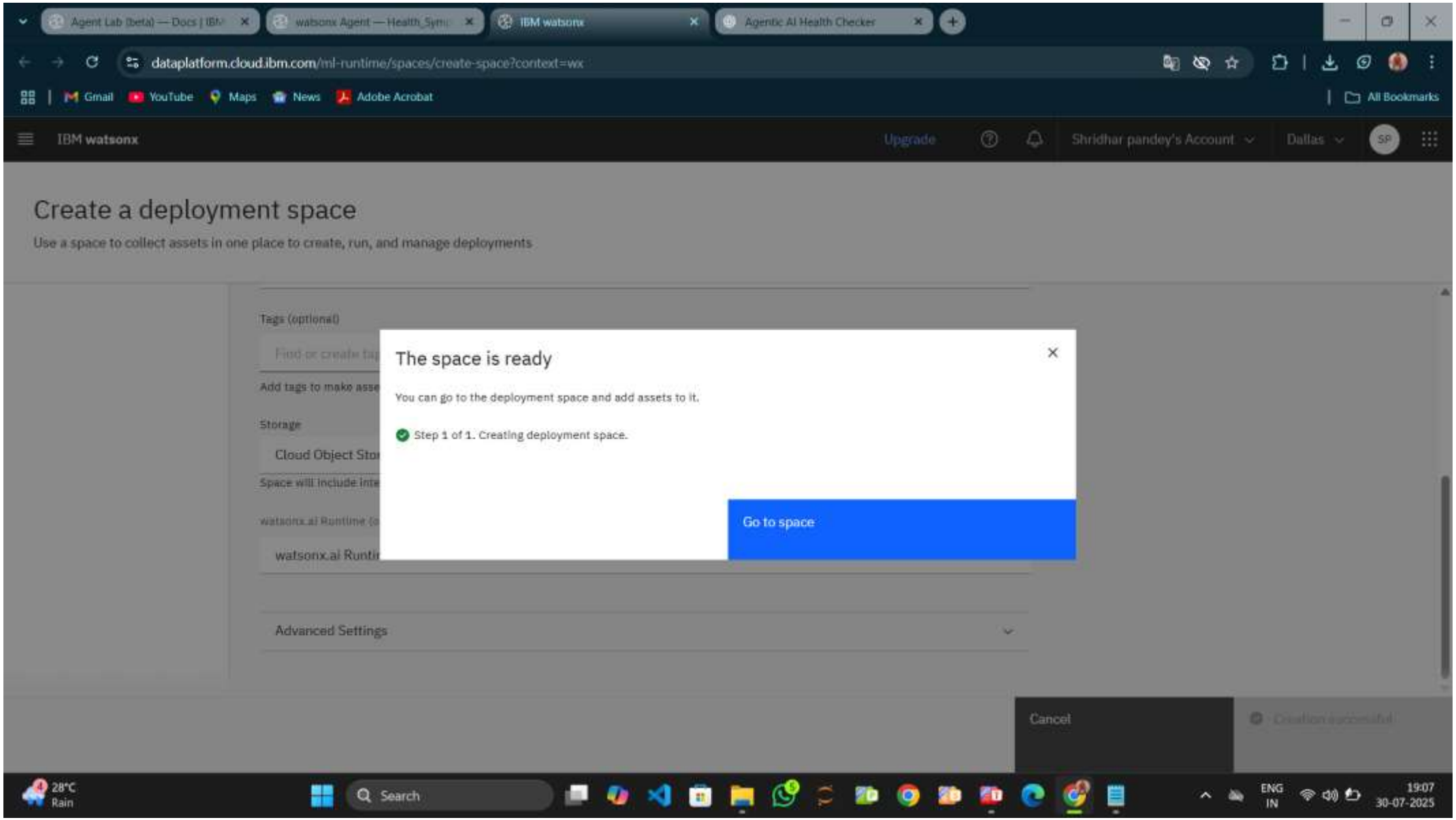
Autosaved 7:03 PM
New agent +
Deploy
Build
Model: granite-3-3-8b-instruct
Disease and Symptoms Dataset
Tools
Add a tool
Create custom tool
Added tools (3)
Google search
Retrieve information from the internet with the Google search engine.
Document search - Disease and Symptoms Dataset
Search documents with vector indexes.
Weather
Retrieve the weather of a city.
Agent preview
You: 07:01 PM
hii
watsonx Agent 07:01 PM
Hello! I'm here to help you with your health concerns. Could you please tell me what symptoms you're currently experiencing?
How did I get this answer?
You: 07:01 PM
fever
watsonx Agent 07:01 PM
I see. How long have you had the fever?
How did I get this answer?
You: 07:01 PM
3 days
Type something...





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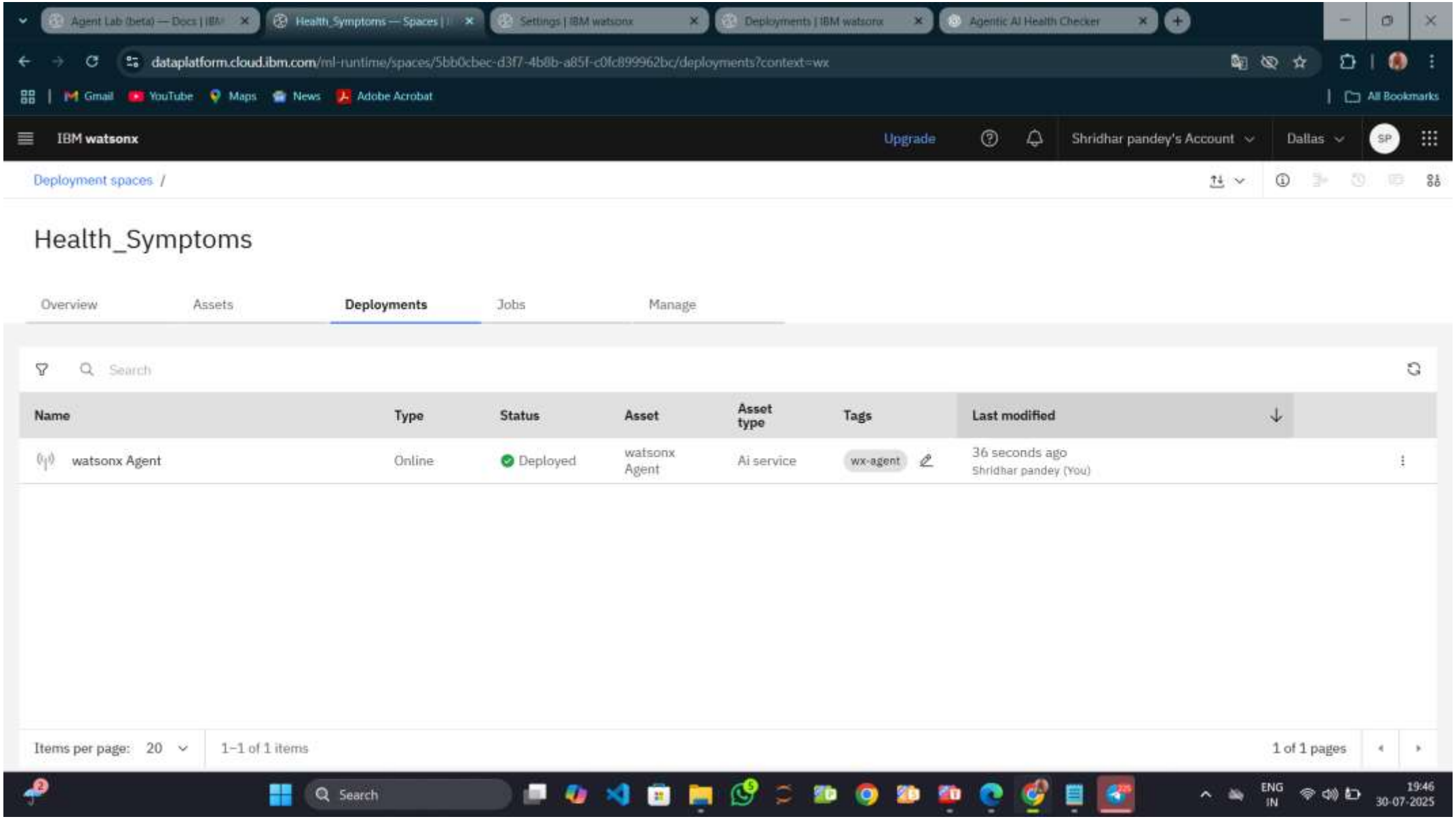

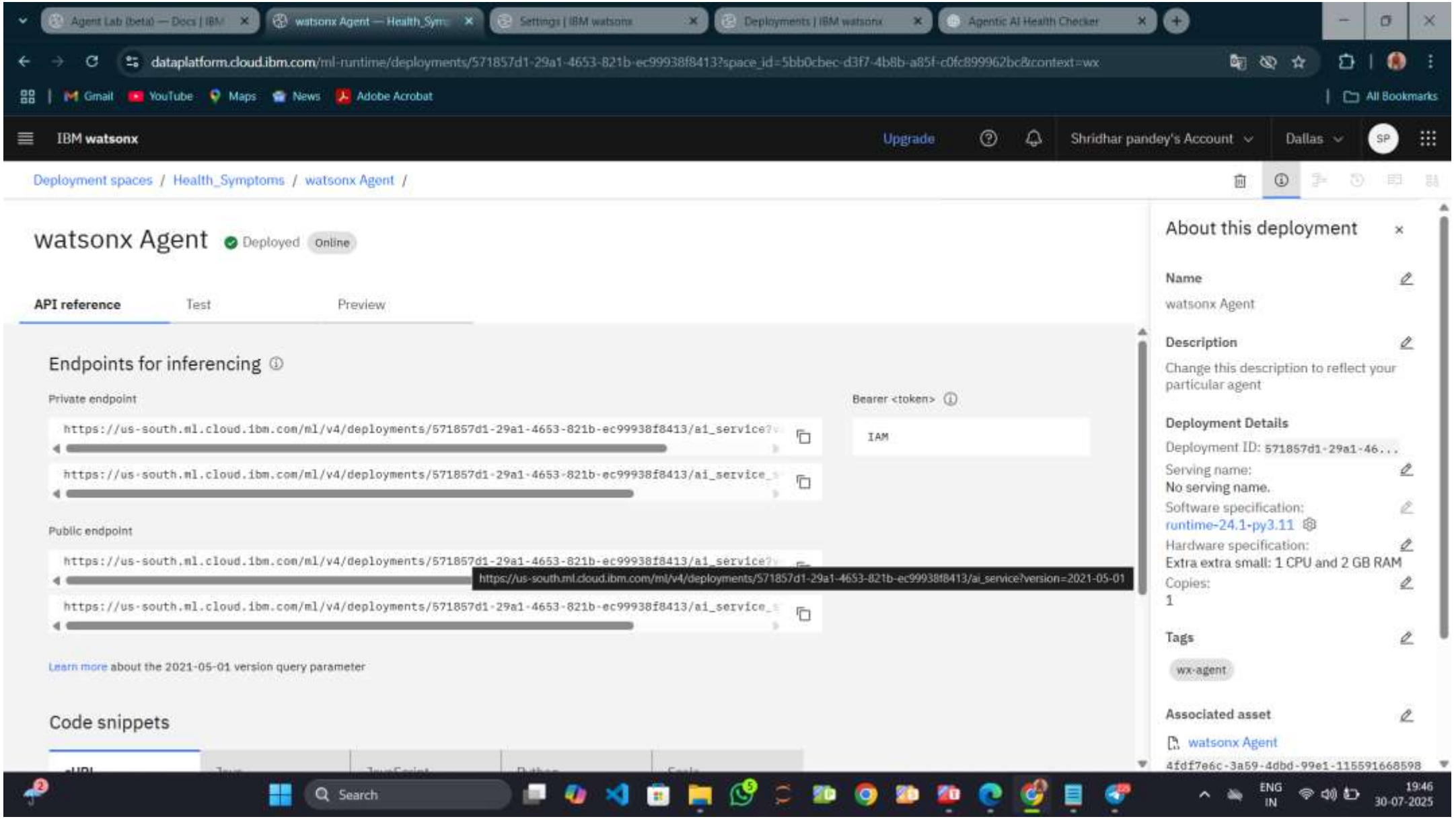

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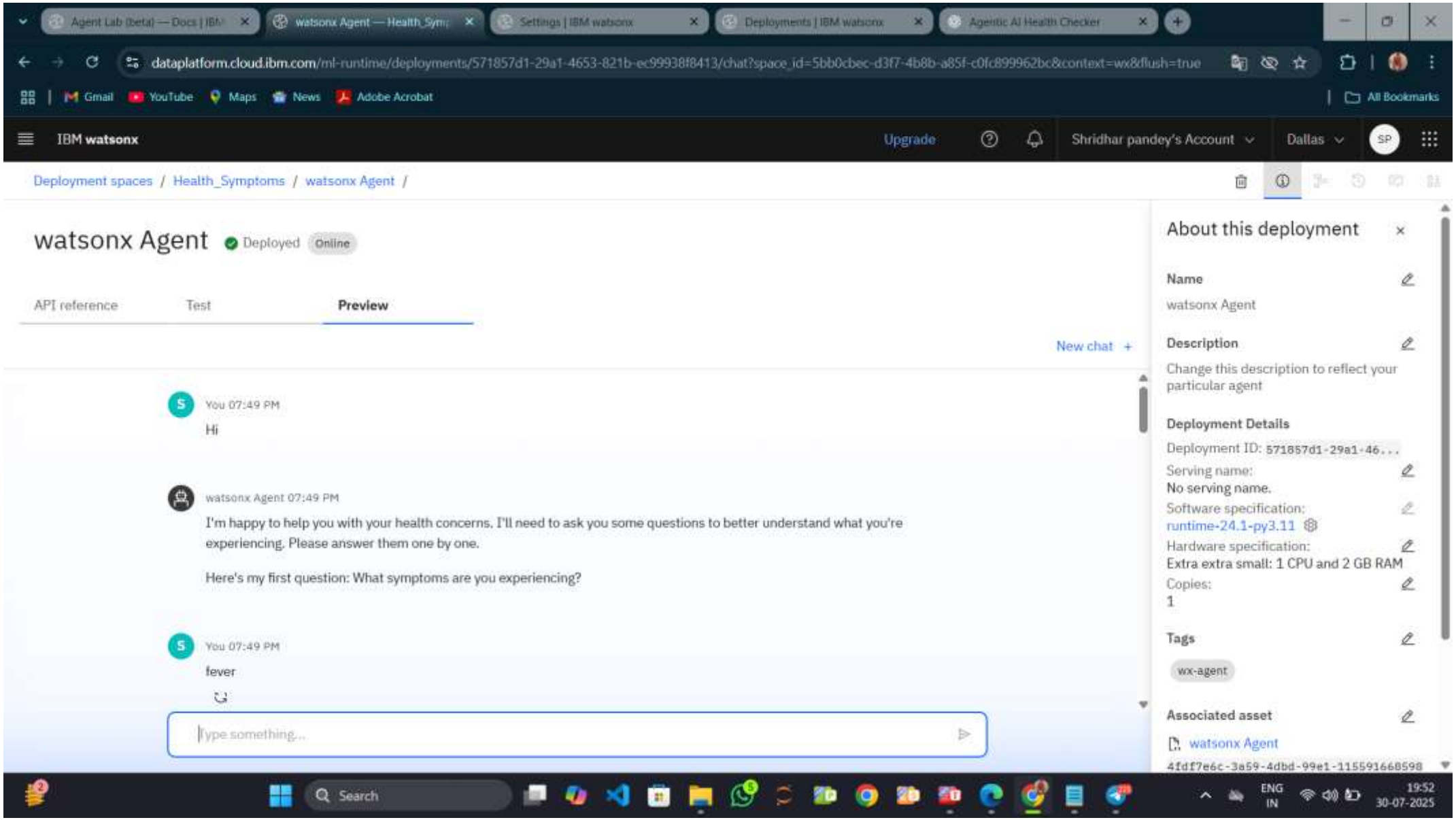

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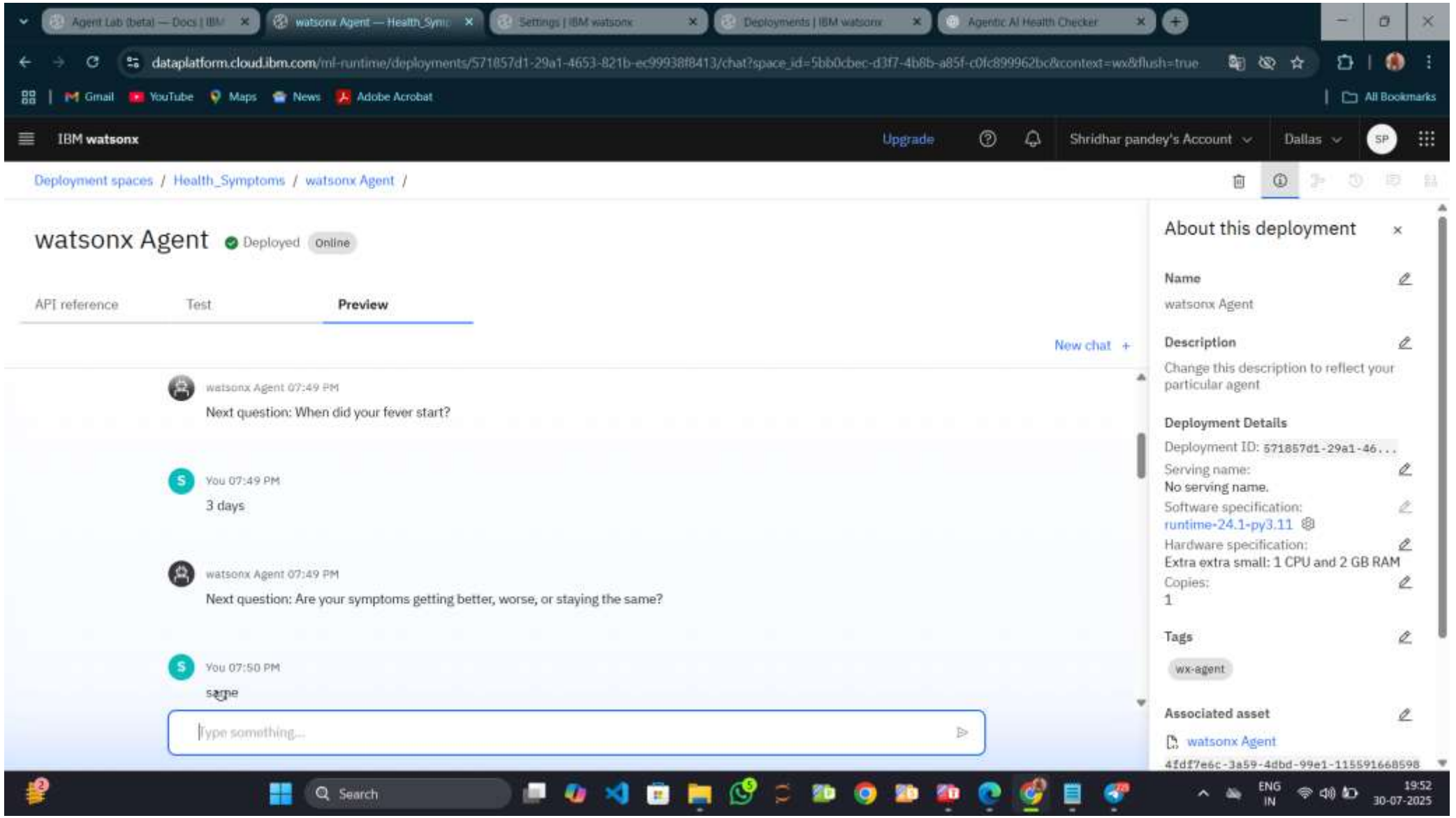

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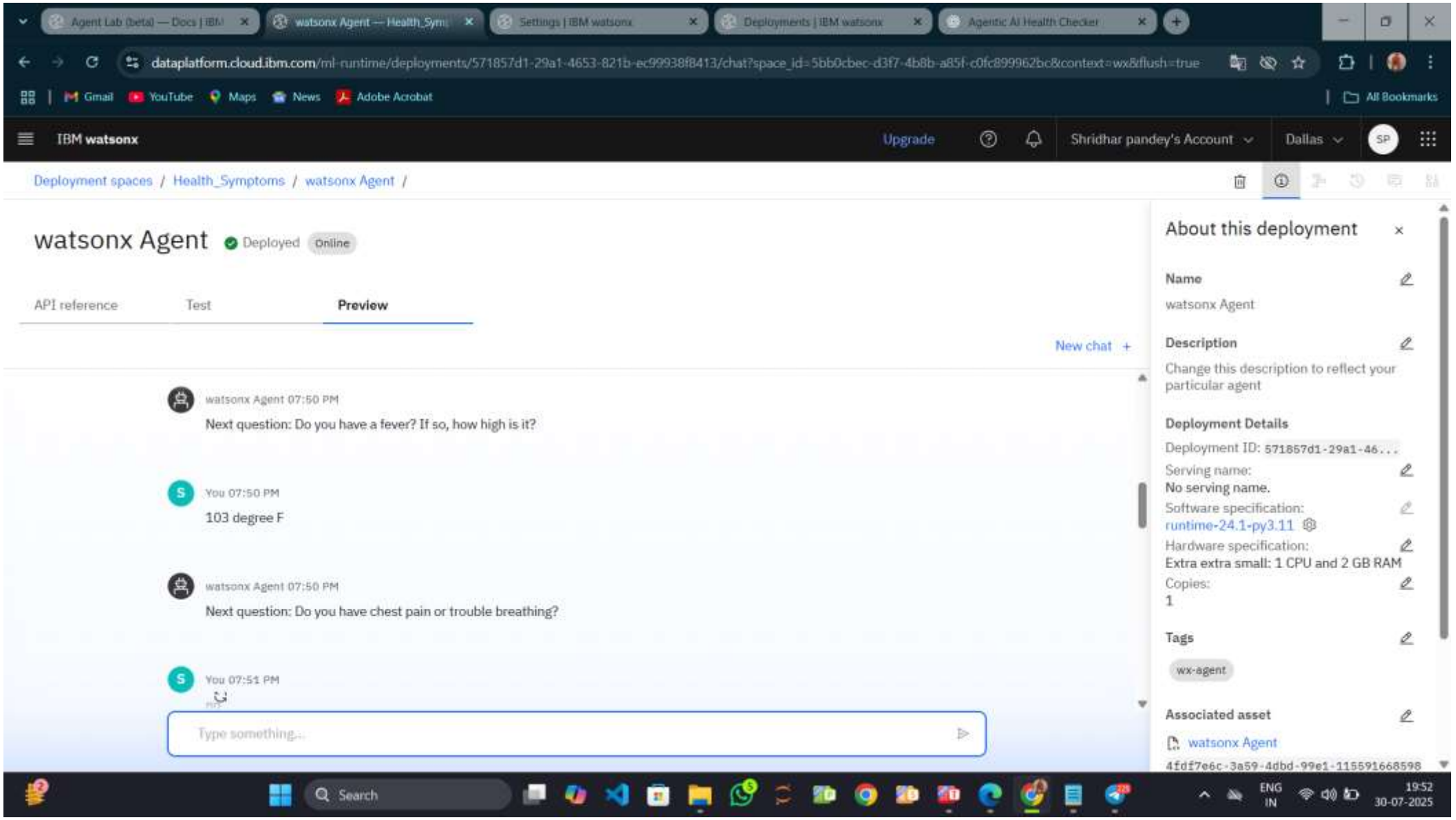
Agent Lab (beta) — Docs | IBM
watsonx Agent — Health_Symptoms
Settings | IBM watsonx
Deployments | IBM watsonx
Agentic AI Health Checker
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Adobe Acrobat
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watsonx Agent
Deployed
Online
API reference
Test
Preview
New chat +
watsonx Agent 07:50 PM
Next question: Do you have a fever? If so, how high is it?
You 07:50 PM
103 degree F
watsonx Agent 07:50 PM
Next question: Do you have chest pain or trouble breathing?
You 07:51 PM
Type something...
About this deployment
Name
watsonx Agent
Description
Change this description to reflect your particular agent
Deployment Details
Deployment ID: 571857d1-29a1-46...
Serving name:
No serving name.
Software specification:
runtime-24.1-py3.11
Hardware specification:
Extra extra small: 1 CPU and 2 GB RAM
Copies:
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Tags
wx-agent
Associated asset
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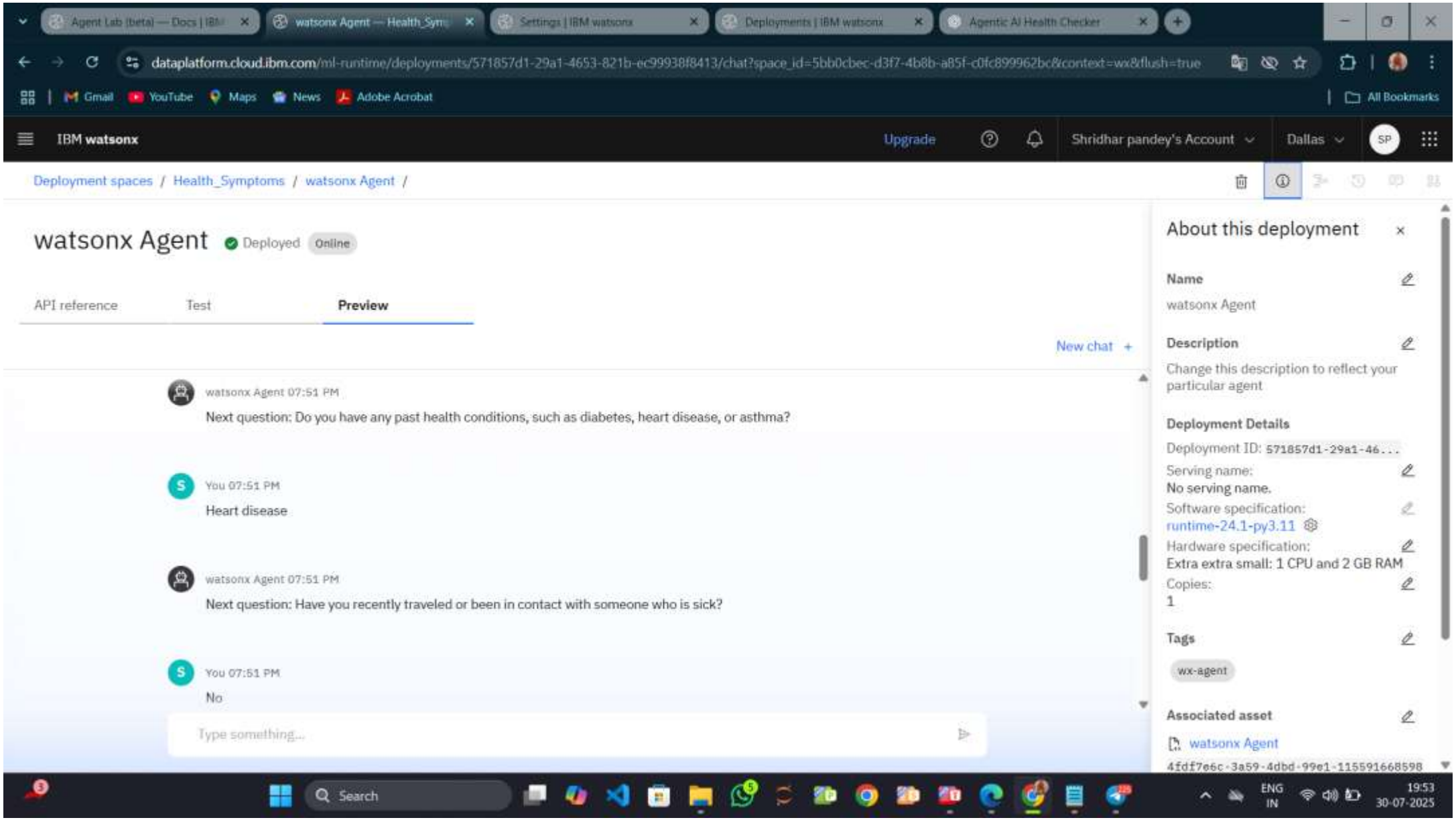

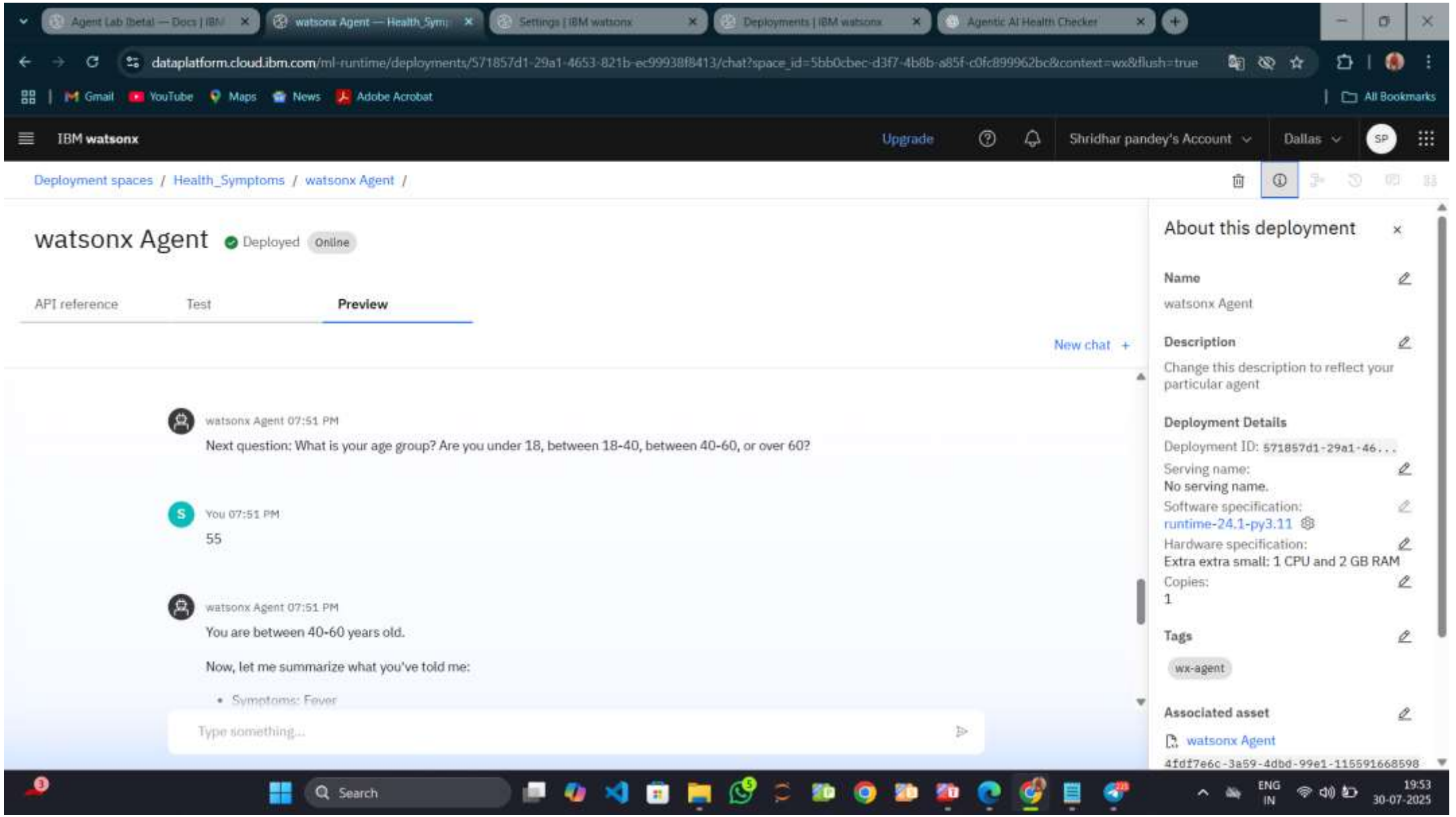

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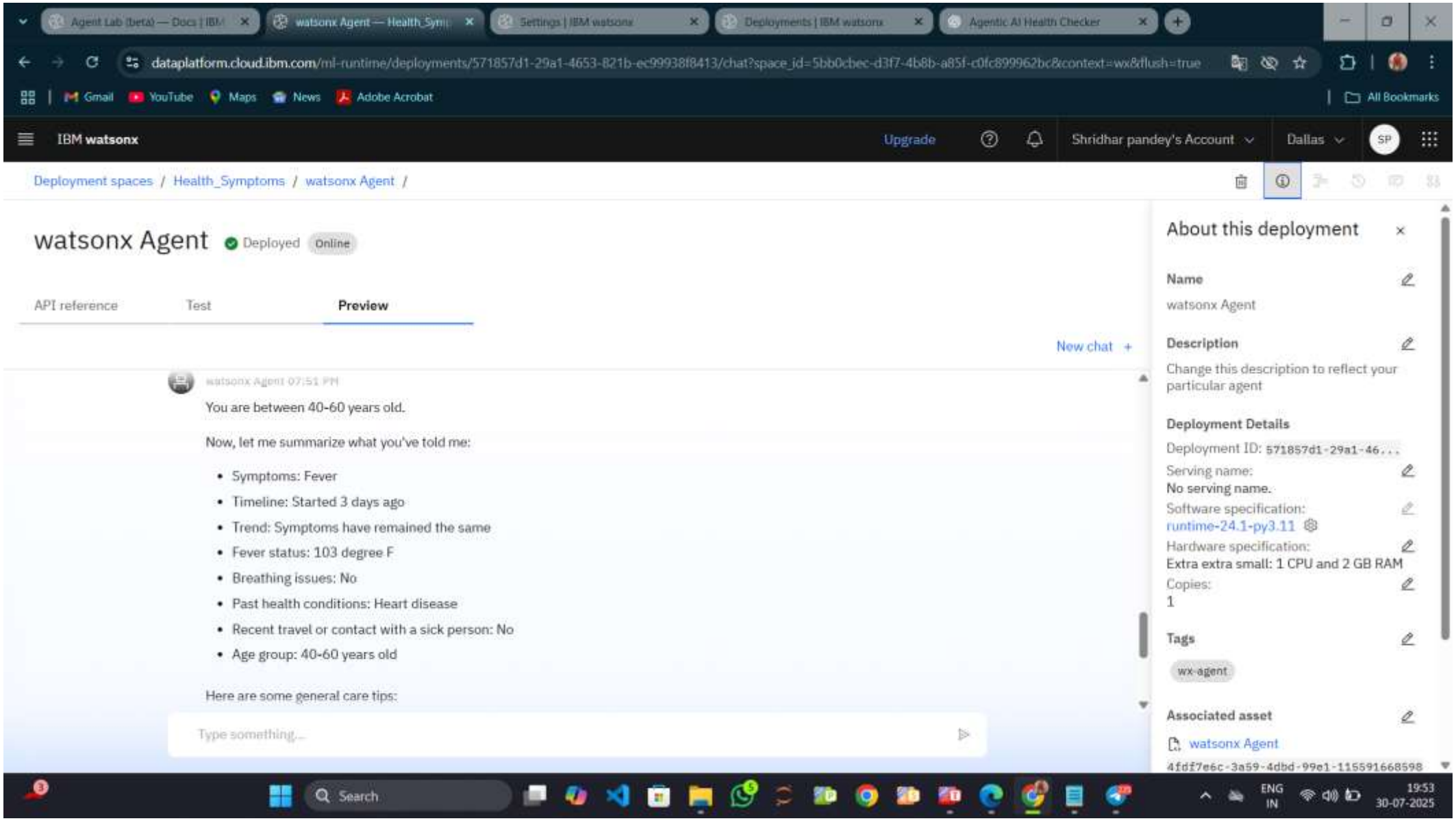

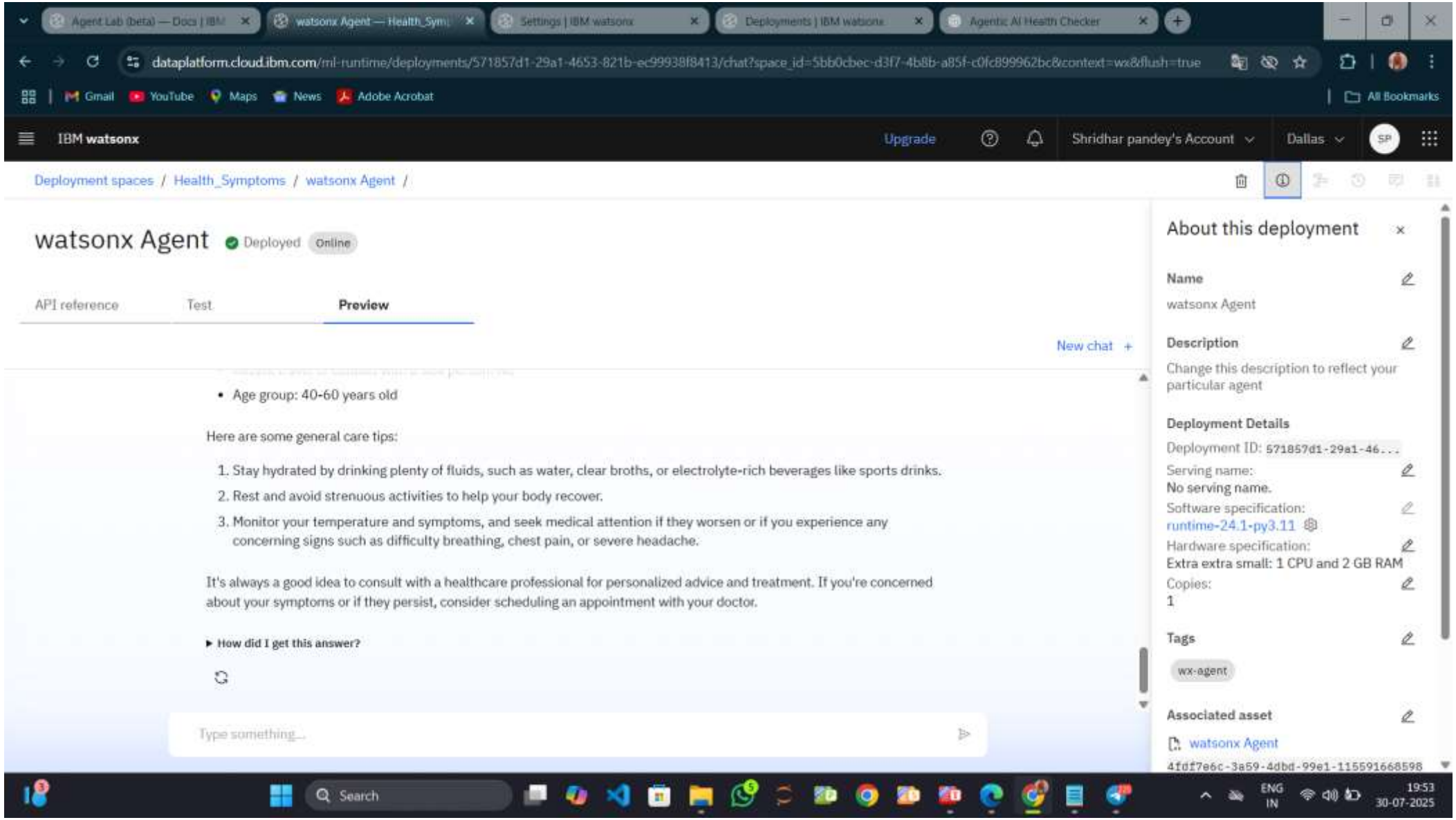

CONCLUSION

- The Agentic AI Health Symptom Checker provides an intuitive and responsible approach to preliminary health screening through natural language interactions. By leveraging IBM Watsonx and Granite models, it ensures that users receive informative, accurate, and empathetic guidance while avoiding the risks associated with self-diagnosis. The system enhances public health awareness by offering timely and relevant symptom analysis, helping users make better-informed decisions about their health. This intelligent assistant represents a valuable step toward democratizing healthcare access and empowering individuals with AI-driven insights.

FUTURE SCOPE

- In the future, the system can be expanded to include integration with electronic health records (EHR) for delivering more personalized advice. Additional enhancements like voice recognition, multi-language support, and smart wearable integration will broaden accessibility and usability. The incorporation of real-time data from government health portals and medical institutions will improve the model's accuracy and reliability. Furthermore, adding a referral mechanism to connect users with verified healthcare professionals or telemedicine services will significantly elevate its practical value in daily healthcare management.

REFERENCES

- World Health Organization (WHO) – https://www.who.int
- Centers for Disease Control and Prevention (CDC) – https://www.cdc.go
- IBM Watsonx & Granite Model Documentation – https://www.ibm.com/watsonx
- IBM Cloud Docs – https://cloud.ibm.com/docs
- Prompt Engineering for Healthcare Agents, IBM Research Papers
- Health articles from PubMed and Mayo Clinic

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Learning hours: 20 mins

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